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(54) **Title:** NAVDURGA VEHICLE SAFETY SYSTEMS

(57) **Abstract:** Various methods which will substantially reduce the impact of collisions and other mishaps on the vehicle itself, living Objects, including human beings while in motion or otherwise, in any type of vehicle, either singly or in combination with each other. Among other things there is provision for sliding of the passenger seats, installation of additional involuntary brakes at different places, provision for providing involuntary acceleration in cases of a push from the rear, provision for shifting and rearrangement of the various parts of a vehicle with a view to reduce the momentum, reduce the thrust of the impacts and also to protect the costlier parts of the vehicle from damage as far as possible. There is also provision for all such defensive apparatuses to draw power from the power systems of the vehicle. The amount of damage caused to vehicles and other materials, objects will be substantially minimized. The amount of mortality and injuries caused to living objects, using these modified vehicle(s) will also be substantially reduced.

NAVDURGA VEHICLE SAFETY SYSTEMS

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INTRODUCTION

The object of filing this application is the use of various principles for the purpose of saving vehicles, primarily road vehicles including, two and three wheelers, from all types of accidents, by creating potential shields. All mechanized vehicles and also manual vehicles like bicycles, tricycles and cycle rickshaws can use these principles.

This can be done through, among other things, by making changes in their structure and design so that properties of shock absorption at all levels and stages and the sliding of various fixed components in a motor vehicle are incorporated and gainfully employed.

It can also be done through use of repellant objects, instruments and/or substances, including magnets which can prevent the collision of any two moving objects as and when they come close to each other.

By incorporating some or all of the changes incorporated in this application, it is expected that the shock, trauma and hence the damage, caused to vehicles and the injuries caused to passengers are greatly minimized.

We have described various different processes, all of them aimed at trying to reduce the trauma and injury to passengers of road vehicles and also greatly minimizing the damage caused to the vehicles.

USE OF PROPERTIES OF REPULSION INCLUDING MAGNETIC PROPERTIES OF METALS

The use of the force of repulsion, through objects, instruments and /or substances, including magnets in various forms and situations is well documented. Here we intend to use the principles of repulsion of such objects, instruments and substances, including magnetic substances. . Such substances, including magnets may be with or without use of electrical force and/or energy. Such objects, instruments and/or substances, including magnets may also derive energy from any available source in the vehicle, including electrical and /or mechanical energy/power from the electrical and /or mechanical system of the vehicle.

Such substances, including magnets can be installed at any appropriate place on the front part of the vehicle, including the bumper of the vehicle and also at any appropriate place at the back of the vehicle , including the back bumper of the vehicle. There will be a strong force of repulsion between such substances, including magnets. Such force of repulsion, therefore, will tend to prevent the collision of the vehicles, either from the front , from the back and even sideways. Such repulsion causing objects, instruments and / or substances, including magnets, will be effectively able to either completely prevent or atleast greatly reduce the intensity of the collision.

In case such objects, instruments and substances, including magnets draw power, including mechanical and/or electrical power from the power of vehicle engine, it will be ensured that more the speed of the vehicle engine, or more the force required to drive the vehicle engine, more will be the power of repulsion. This will act as a self-regulatory and also self-protective mechanism.

There can be various permutations and combination of the objects, instruments and substances, including magnets, which can be installed at the front of the vehicle, including the bumper and also at the back of the vehicle including the back bumper. Such objects, instruments and/or substances, including magnets will be of various shape and sizes, depending upon the force; the purpose they all expected to serve and various other physical, electrical and chemical forces and other factors involved.

Similarly, the side walls will be fitted with objects, instruments and/or substances, including magnets so as to prevent the damage to the side walls or to the front bumper and the back bumpers. The incidence of the collision of the front bumper on the side wall is quite high and is a major source of damage and destruction.

Such installations are expected to avoid the impact of collision of vehicles upto the large extent. In any case, such objects, instruments and/or substances, including magnets will greatly reduce the damage caused to the vehicles and the adjoining structures. It will also save heavily on premium paid to the Insurance companies subsequent to collision of vehicles.

Such objects, instruments and/or substances, including magnets, will play a major role wherever the front of one vehicle collides with the front of another vehicle, or object (which may be a wall, a barrier, tree or for that matter anything and everything, which can directly or indirectly utilize the property of repulsion) i.e. head on collision. Such objects, instruments and/or substances will also prevent and /or minimize the impact and the damage whenever the front of the vehicle collides with the back of another vehicle. There will be substantial benefit in cases of sideways collisions also.

INSTALLATION OF SHOCK ABSORBING MATERIALS ON THE FRONT, BACK AND THE SIDES OF A VEHICLE

Extensive use of various types of shock absorbing materials can be made to reduce the impact of collisions. Among other things, objects like sponge, rubber, plastic, leather etc and also various filled in objects like air bags, water bags etc can be used all around and also inside a vehicle, particularly at the front and back. Such objects can be used all around the vehicle, particularly at the front, back and at the sides also.

In fact the use of various metal and /or brittle objects in manufacture of vehicles can be avoided to a large extent. The entire vehicle should be made up of flexible, shock absorbing materials, which easily slide on impact.

The front part of the vehicle will have a heavy protective shield in the form of a big bag of sponge and/or air and/or water etc. etc. made in rubber or plastic or any other similar and / or related material. In the event of a collision this will take the maximum impact and will help to reduce it drastically. Similar protective shields can be provided at the back of the vehicle and also the sides of the vehicle.

These will work in conjugation with the other systems described in this application, like sliding seats, sliding body components etc, or independently.

Provision for Sliding of various components of the vehicle including the Seats, Body components, Engine components, Storage spaces and other parts, Appropriate spaces for such sliding & Provision for providing the required power to the Sliding Systems

These modifications will help in reducing trauma and injury to the passengers, and also damage to the various components of the vehicle, including the body of the vehicle, the various parts of the engine and various other structures in all accidents.

The maximum benefit will be in cases of collisions from the front & the back. This will also help absorb the shock due to sudden movements. It should consist, among others, of the following main parts –

(a) **Sliding Seats**: – The passenger seating compartment will be a complete and separate compartment in itself - It will be a floating cum sliding compartment in such a manner that it tries to absorb all external impacts - from the front, back and also the sides. For example, in case of frontal collision, the passenger compartment will automatically move backwards and in case of rear collision, it will automatically move forwards. Similarly it will move side-ways in case of side collisions. There will also be a provision to absorb the bumps from below due to travel on irregular surface(s).

The movement of the front seat backwards will be more for the front row of seats in case of a frontal collision. Similarly in case of a rear collision, the

movement of the back row of seats forward will be more than that of the front row of seats.

Similarly, there will be provisions for sliding in the engine components. Those components of the engine, which lie in the front, will try to absorb as much shock as possible in case of a collision. They will move forward and or backward, depending on the type of the collision.

The body components and also the chassis, the base, the suspension etc, all will have appropriate provisions so that they can absorb at least a part of the impact of the collision. Such provisions will be multi-sided, i.e. they can be so defined as to absorb shocks from the front, back and the sides.

(b) **Space for Sliding** - Obviously in case sliding at any place described hereinabove, is desired, there will be adequate space for sliding of the concerned object, both backwards (in case of frontal collision) and forwards in case of rear collision, and also sideways.

By way of calculations, the space required for movement in various collisions at different speeds will be calculated and adjusted accordingly. This will also depend upon the application of a particular mode of transport, which can be slow-speed and/or high-speed.

(c) **Power to the Sliding Systems** - The Sliding System can derive power from the electrical and /or mechanical power system of the vehicle. The power which is used for the steering system and brakes can be modified accordingly and the power of the vehicle can be utilized for and towards faster and smoother response from the Sliding Systems. As described elsewhere in this application, greater the speed and /or the power of the engine, greater will be the power provided/ diverted to these systems which will help in saving damage.

REARRANGEMENT OF THE VARIOUS PARTS OF A VEHICLE WITH THE OBJECTIVE OF USING A VEHICLE AS A SHIELD TOWARDS INJURY TO PASSENGERS & DAMAGE TO ITSELF

A vehicle has various components. They all need to be rearranged in such a manner that they all complement each other and the object of their such placement is to act as shields towards injury to passengers and damage to itself.

It is very important that almost all components of the vehicle follow a sliding pattern and all the parts have adequate provisions and spaces so as try to absorb the impact of collisions.

Among other things, the components of the engines, the dashboards, the storage spaces, the passenger compartments etc. can be adequately and appropriately rearranged, and provision can be made for each one of them to be able to slide. In fact each and every component of the vehicle will be re-set with this objective.

The components are either light or heavy, some are expensive and some are inexpensive. Further, some components occupy more space and some occupy less space. Therefore there will be a complete redesigning of the entire vehicle.

Based on the above, the pattern of rearrangement should be as follows -

(a) **In the front** - There should be those components, which are heavy, inexpensive and occupy more space. They should be the ones to absorb the first impact. They may be so selected so as to have low replacement costs and

easy replacements in the event of damage. They should slide backwards as per the various provisions for sliding. Also such sliding can derive power from the power systems available to the vehicle.

(b) **In the middle part,** heavy items, which are comparatively more expensive, will be arranged. They will also have the provisions described above.

(c) **In the rear part** also, items, which can help in saving damage from collisions and in absorbing and reducing the impact of collisions, will be arranged appropriately.

All components of the engine now a days are joined with each other and are more or less a single structure.

There is no need for rearrangement of the parts in such a manner that they are flexible and sliding in nature. Plus the different rows of the engine should be arranged in such a manner that each of them try to absorb the impact of collisions, if any, both individually and collectively.

The first row, containing the heaviest parts will first take the impact of any collision. Depending upon the force of the impact, this row should slide backwards. The second row will take this greatly reduced impact of the collision and if required it should slide backwards on the third row and so on.

In between the various components, various shock absorbing materials can be filled or fitted to absorb and reduce the impact of the collision. Among other things, such material can be metal, shock absorbers, Sponge, thermocol, cotton, leather and similar flexible substances.

In between the various components of the engine, there will be electronic and/or computerised triggers. In the event of a collision, these triggers will get activated and should send appropriate signals to the passenger seating system so that they can get pushed backwards.

The engine of the vehicle as a whole should act as the protective shield for the rest of the vehicle. Majority of the impact of the collision will hence be neutralised by the engine itself.

INSTALLATION OF BRAKES AT THE FRONT AND/OR ACCELERATOR AT THE BACK, AND THE CONNECTION OF SUCH INSTALLATIONS WITH ALL SLIDING SYSTEMS AND POWER SYSTEMS OF THE VEHICLE.

As on date almost all vehicles, except those used for training, have only one brake. Obviously the person who drives the vehicle has complete, unilateral and singular command over this brake. Similar is the case for the accelerator of the vehicle and also the clutch and the other controls.

By way of this application, we propose the multi-brake, multi-accelerator, multi-clutch and multi-control models for the following purposes: -

1. Increased safety of passengers traveling in all the vehicles.
2. Minimization of damage to all the vehicle in the event of a collision
3. Control of damage to the other parties, including pedestrians
4. Totally eliminating the human error factors involved in accidents
5. Preventing vehicles from causing extensive damage in cases of mechanical failures etc.

This can be done in the following manner: -

1. An involuntary braking system (with or without an accompanying clutch system and other required accessories) will be installed at the front side and/or the sides adjoining the front part of the vehicle. Among other places, such installation will be at the front bumper, which may be extended on to the sides of the vehicle. Other arrangements can include installation at any place on the front. Alternately, the front bumper or any similar structure will be made to protrude out to a variable distance from the body of the vehicle on the front side.

2. This involuntary braking system will be connected to the main braking system of the vehicle. As and when this structure containing this braking system is either touched and or pressed by a third party, i.e. an outside party, this braking system will start working like the main brake of the vehicle and the vehicle will come to a halt.
3. This will happen without the control of the person driving the vehicle. In case of a frontal collision with anything, including another vehicle, any living or non living object or even with a pedestrian, the vehicle will automatically come to a halt, irrespective of whether the driver has applied the brakes or not.
4. Such braking system will derive power from the electrical and/ or mechanical power of the vehicle. Hence, the speed of the vehicle will not affect the application of these involuntary brakes.
5. Such brakes will also be connected to the various sliding systems already described in this application. Application of such brakes from an outside source will automatically trigger off the various sliding systems in the body of the vehicle. As a result the passengers will also slide backwards. This will reduce the impact of the sudden deceleration on the passengers and will greatly reduce the risks of injury to the passengers. Also such sliding will reduce the damage, if any to the various components of the vehicle.

Similarly, a connection to the accelerator of the vehicle will be made at the back of the vehicle. Such a connection may be at the back bumper or at any place towards the rear of the vehicle. In case of a push to the vehicle from the rear, this connection to the accelerator will push the vehicle forward and the impact of the collision from the rear will be greatly reduced.

These systems are aimed at preventing deaths and damage. There is no doubt that these systems will be very effective and will be in regular use in the very near future.

This system will herald a new era in the field of transportation in the world. Such an idea has never been conceived in the past. Besides being new and novel, it is cost effective. It will go a long way in reducing human suffering, preventing a very large number of deaths, and saving damage to various things, including vehicles.

CLAIMS

What is claimed is :

01. The use of any/all process(es), object(s), instrument(s) and/or substance(s), which can induce or cause to be induced, and/or use or cause to be used, any activity, which involves the use of any mechanical, electrical force and/or any other type of force(s) or energy, with the purpose of creating and/or inducing the process(s) of increasing or causing to be increased, the distance of two vehicles from each other, or of one vehicle from another object , including use of properties and/or force(s) of repulsion for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the vehicle(s) and to all nearby and surrounding object(s), both living and non-living.
02. The use of any form(s) or system(s) or combination of the forms and systems and/or any arrangement which uses or causes to be used for the purpose of installation and/or use of any system, other than conventional braking system used by the person driving the vehicle, which may be used, either directly or indirectly for the purpose of causing the slowing down and / or stopping of a moving vehicle by any person other than the person driving the vehicle, either with or without the indulgence of the person driving the vehicle for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the vehicle(s) and to all nearby and surrounding object(s), both living and non-living.
03. The use of any/all process(es), object(s), instrument(s) and/or substance(s), which can induce or cause to be induced, and/or use or cause to be used, in all activities which involve the properties of sliding, shifting, displacement, overlapping and/or similar processes which can be induced to occur in a vehicle(s), particularly in the passenger seating areas, and/or the body of the vehicle, by way of suitable alterations in the design of the vehicle(s), for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the

vehicle(s) and to all nearby and surrounding object(s), both living and non-living.

04. The use of any/all process(es), object(s), instrument(s) and/or substance(s), which can induce or cause to be induced, and/or use or cause to be used, in all activities which directly or indirectly cause a reduction in and/or absorption of the momentum of a vehicle, for the purpose of causing overall reduction in the momentum of the vehicle, directly or indirectly, trying to reduce the impact in case of a collision or any other mishap,for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the vehicle(s) and to all nearby and surrounding object(s), both living and non-living

05. The use of any/all process(es), object(s), instrument(s) and/or substance(s), which can induce or cause to be induced, and/or use or cause to be used, in all activities which , singly or jointly, which cause or help to be caused, directly or indirectly, inter alia, the shifting, the sliding, the displacement and/or similar actions, singly or jointly, of the passengers traveling in any vehicle for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the vehicle(s) and to all nearby and surrounding object(s), both living and non-living

06. The use of any/all process(es), object(s), instrument(s) and/or substance(s), which can induce or cause to be induced, and/or use or cause to be used, in all activities which directly or indirectly The creation of any additional space or cavity or a combination of both, providing for the necessary infrastructure, arrangement, mobility , the mechanisms required for such mobility for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the vehicle(s) and to all nearby and surrounding object(s), both living and non-living

07. The use of any/all process(es), object(s), instrument(s) and/or substance(s), which can induce or cause to be induced, and/or use or cause to be used, in all activities which directly or indirectly which reduces or tends to reduce directly or indirectly the fatigue,

due to vibration or otherwise, caused to the passengers during travel and transport in any vehicle, for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the vehicle(s) and to all nearby and surrounding object(s), both living and non-living

08. The use of any/all process(es), object(s), instrument(s) and/or substance(s), which can induce or cause to be induced, and/or use or cause to be used, in all activities which are directly or indirectly ,singly or jointly, connected with and/or associated with the drawing of power from any system including mechanical, electrical, electro-magnetic and others for providing power to various parts of the vehicle, including those mentioned in claims at serial Nos. 1 to 7 above, for the purpose of eliminating/reducing the impact and/or the momentum in the event of a collision and/or any other mishap, of the said vehicle with any other object and/or vehicle, either moving or stationary, for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the vehicle(s) and to all nearby and surrounding object(s), both living and non-living

09. The use of any/all process(es), object(s), instrument(s) and/or substance(s), which can induce or cause to be induced, and/or use or cause to be used, in all activities which are directly or indirectly ,singly or jointly, inter alia , including springs, shock absorbers, thermocols, cotton and cotton derivatives, rubber and rubber containing compounds, leather and leather products and other products which can reduce, absorb, transfer , shift, divert and connected with and/or associated with and either excluding or including those mentioned in the claims at serial Nos. 1 to 8 hereinabove, for the purpose of eliminating/reducing the impact and/or the momentum in the event of a collision of the said vehicle with any other object and/or vehicle, either moving or stationary, for the purpose of eliminating/reducing the injury(ies) caused to the passenger(s) in the vehicle(s) , the damage caused to the any part(s) of the vehicle(s) and to all nearby and surrounding object(s), both living and non-living